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EXAMINER

CHOI, MICHAEL P

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/626,867	Applicant(s) LEE ET AL.	
	Examiner Michael Choi	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 11/5/08 have been fully considered but they are not persuasive.

As per remarks on pages 10 and 11, applicant argues that claims 1-5 satisfy the requirements of 35 USC 101.

In response, when nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored on a computer-readable medium, in a computer, or on an electromagnetic carrier signal, do not make it statutory. See *Diamond v. Diehr*, 450 U.S. 175, 185-86, 209 USPQ 1, 8 (noting that the claims for an algorithm in *Benson* were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer."). Such a result would exalt form over substance. In *re Sarkar*, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) ("[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under § 101, the claimed invention, as a whole, must be evaluated for what it is.") (quoted with approval in *Abele*, 684 F.2d at 907, 214 USPQ at 687). See also In *re Johnson*, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) ("form of the claim is often an exercise in drafting"). For further explanation, see MPEP 2106.01 [R-6].

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As per remarks on page 12, applicant argues that Morris does not disclose, teach or suggest the features as recited in claim 1, as amended.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Both Morris and Rodriguez et al. were used to teach claim 1.

As per remarks on pages 12, 13 and 17, applicant argues that neither Morris nor Rodriguez teaches all of the individual features when combined and that the examiner does not give sufficient reason for the combination, where Morris and Rodriguez's invention are structurally different.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user. Also, Applicant's arguments do not comply with 37 CFR 1.111(c) because they do not clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. Further, they do not show how the

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amendments avoid such references or objections. It is just stated that both Morris and Rodriguez teach all of the individual features of claim 1.

As per remarks on page 14, applicant argues that Morris and Rodriguez do not disclose, teach or suggest the features as recited in claim 5.

In response, Morris teaches the reproduction control information further comprises: information on types of the multi-streams and the interactive contents (Paragraphs [0051,0052] – PID); time information to synchronously reproduce and synchronously convert the multi-streams and the interactive contents (Paragraph [0052] – system time); time information to independently reproduce and independently convert the multi-streams and the interactive contents (Paragraph [0052] – system time). Further, parental rating ranks movies according to appropriate viewing levels for children of different age groups. Also, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As per remarks on pages 14, 15 and 17, applicant argues that Morris does not teach data streams comprising interactive contents and navigation information, thereby not suggesting features as recited in claim 6. Further, Rodriguez does not suggest interactive contents and converting read-out interactive contents into DTV interactive contents. Further, there is no motivation to combine.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., data streams

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comprising interactive contents and navigation information) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Rodriguez was used to teach interactive contents. Also, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Also, Rodriguez teaches such limitations of interactive contents (in at least Paragraphs [0019,0030,0032] - interactive applications) and converting the read-out interactive contents into DTV interactive contents (Paragraphs [0036,0042] – further clarified in that conversion of transport streams to suitable output signals through network).

Finally, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user.

As per remarks on pages 15 and 16, applicant argues that since Morris fails to teach interactive contents, Morris cannot teach converting such interactive contents.

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In response, Rodriguez teaches such interactive contents (see Office Action) thus necessitating the 35 USC 103 rejection. Since Morris does not teach such limitations, Rodriguez was used to cure such deficiencies wherein the limitations as a whole were combined to form such rejection. Also, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As per remarks on page 16, applicant argues that Morris does not suggest reproduction control information from the information storage medium regarding claim 12.

In response, Morris teaches reproduction control information from the information storage medium (Fig. 1, 102 – further clarified in that such control information is needed to relay information from 102 to such dependent subsidiaries as seen in Fig. 2). Also, Rodriguez teaches such interactive contents (see Office Action) thus necessitating the 35 USC 103 rejection. Since Morris does not teach such limitations, Rodriguez was used to cure such deficiencies wherein the limitations as a whole were combined to form such rejection. Also, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As per remarks on pages 17 and 18, applicant argues that Morris does not disclose any signal processing unit processing the read-out information into reproduction signals.

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Rodriguez was used to teach interactive contents and signal processing unit performing such conversion. Also, in response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Also, Rodriguez teaches such limitations of interactive contents (in at least Paragraphs [0019,0030,0032] - interactive applications) and converting the read-out interactive contents into DTV interactive contents (Paragraphs [0036,0042] – further clarified in that conversion of transport streams to suitable output signals through network).

As per remarks on page 18, applicant argues that there is no basis for the assertion that there is an integral structure that is a transcoder with the features recited in claim 20.

In response, applicant claims a first transcoder and a second transcoder that both perform conversion. Therefore the basis for an integral structure lies in two separate transcoders into one that can perform such conversion. Where it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

As per remarks on pages 18 and 19, applicant argues that Rodriguez doesn't mention XHTML, XML, JPEG, or PNG regarding claim 24.

In response, Rodriguez teach such HTML parser in Paragraph 65 where in order to retrieve such information, a structure specific to collecting and selecting HTMLs would infer that such content would be an HTML.

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As per remarks on pages 19 and 20, applicant argues that Kato does not suggest generating, scheduling or multiplexing of null packets, there would have been no motivation to combine such with either Morris or Rodriguez.

Kato teaches such null packets for generation, scheduling and multiplexing in Fig. 1, 14; Col. 2, line 9; and Col. 5, lines 4-14. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a null packet to add packets without significant data to a stream to stuff such stream to avoid any bottleneck of insufficient resources.

As such, and for reasons given in the Office Action with art rejections all claims are rejected. All dependent claims inherit such deficiencies from independent claims, along with art rejections are rejected thereupon. No claims are allowable.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

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The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (Official Gazette notice of 22 November 2005), Annex IV, reads as follows:

Nonfunctional descriptive material that does not constitute a statutory process, machine, manufacture or composition of matter and should be rejected under 35 U.S.C. Sec. 101. Certain types of descriptive material, such as music, literature, art, photographs, and mere arrangements or compilations of facts or data, without any functional interrelationship is not a process, machine, manufacture or composition of matter. USPTO personnel should be prudent in applying the foregoing guidance. Nonfunctional descriptive material may be claimed in combination with other functional descriptive multi-media material on a computer-readable medium to provide the necessary functional and structural interrelationship to satisfy the requirements of 35 U.S.C. Sec. 101. The presence of the claimed nonfunctional descriptive material is not necessarily determinative of nonstatutory subject matter. For example, a computer that recognizes a particular grouping of musical notes read from memory and upon recognizing that particular sequence, causes another defined series of notes to be played, defines a functional interrelationship among that data and the computing processes performed when utilizing that data, and as such is statutory because it implements a statutory process.

Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter as follows. Claims 1-5 recite a computer-readable information storage medium which does not impart functionality to a computer or computing device, and is thus considered nonfunctional descriptive material. Applicant defines such computer-readable information storage medium to be a DVD video disc as seen in Paragraphs 5 and 7. Such nonfunctional descriptive material, in the absence of a functional interrelationship with a computer, does not constitute a statutory process, machine, manufacture or composition of matter and is thus non-statutory per se.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (2001/0007568 A1) and Rodriguez et al. (US 2002/0059623 A1).

Regarding Claim 1, Morris teaches a computer-readable information storage medium, comprising:

- multi-streams (Paragraph [0008]); and
- reproduction control information comprising conversion information to convert the multi-streams and/or the interactive contents (in at least Paragraphs [0064+]) into digital television (DTV) streams (Paragraphs [0046,0047,0051]).

Morris fails to explicitly teach interactive contents comprising information that enables an interface with a user. Rodriguez et al. teaches interactive contents comprising information that enables an interface with a user (in at least Paragraphs [0019,0030,0032] - interactive applications).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user.

Regarding Claim 2, Morris teaches the computer-readable information storage medium of claim 1, wherein the multi-streams comprise a moving picture experts group-2 program stream (MPEG-2 PS), an MPEG-4 format stream, an MPEG-7 format stream, and/or a Wavelet transform format stream (Paragraph [0050]).

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Regarding Claim 3, Morris teaches the computer-readable information storage medium of claim 1, wherein the reproduction control information further comprises: identification information identifying the multi-streams from the interactive contents to perform a DTV stream conversion (Paragraphs [0051,0052] – PID); and control information controlling a generation of the DTV streams (Paragraph [0052] – control information).

Regarding Claim 4, Morris teaches the computer-readable information storage medium of claim 1, wherein the reproduction control information further comprises management information and search information to reproduce the multi-streams and the interactive contents (Paragraph [0052] – time stamps).

Regarding Claim 5, Morris teaches the computer-readable information storage medium of claim 4, wherein the reproduction control information further comprises: information on types of the multi-streams and the interactive contents (Paragraphs [0051,0052] – PID); time information to synchronously reproduce and synchronously convert the multi-streams and the interactive contents (Paragraph [0052] – system time); time information to independently reproduce and independently convert the multi-streams and the interactive contents (Paragraph [0052] – system time);; additional information on start times, reproduction periods (Paragraph [0052] – system clock reference for DTS/PTS).

Morris fails to explicitly teach parental ranking information on the multi-streams and the interactive contents and titles of the multi-streams and the interactive contents; and information of detailed descriptions of the multi-streams and the interactive contents. Rodriguez teaches parental ranking information on the multi-streams and the interactive contents (Paragraph [0073]) and titles of the multi-streams and the interactive contents (Paragraphs [0071-0073]);

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and information of detailed descriptions of the multi-streams and the interactive contents (Paragraph [0073]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have various attributes concerning the interactivity of a medium to allow user necessary information to select and choose from according to desired preferences.

Regarding Claim 6, Morris teaches a method of reproducing data recorded on an information storage medium of a DTV, the method comprising:

- reading out multi-streams (Paragraph [0008]), interactive contents, and reproduction control information from the information storage medium (Fig. 1, 102) having conversion information (in at least Paragraphs [0064+]) to convert the multi-streams and/or the interactive contents into DTV streams (Paragraphs [0046,0047,0051]);
- converting the read-out multi-streams into transport streams appropriate to the DTV (Paragraphs [0046,0047,0051]); and
- multiplexing the transport streams and the DTV interactive contents based on the read-out reproduction control information to generate DTV streams (Paragraphs [0029,0047,0051,0061,0062,0064]).

Morris fails to explicitly teach interactive contents and converting the read-out interactive contents into DTV interactive contents. Rodriguez et al. teaches interactive contents (in at least Paragraphs [0019,0030,0032] - interactive applications) and converting the read-out interactive contents into DTV interactive contents (Paragraphs [0036,0042]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user.

Regarding Claim 7, Morris teaches the method of claim 6, wherein the multi-streams comprise an MPEG-2 PS, an MPEG-4 format stream, an MPEG-7 format stream, and/or a Wavelet transform format stream (Paragraph [0050]).

Regarding Claim 8, Morris teaches the method of claim 7, wherein the MPEG-2 PS is converted into an MPEG-2 TS during the conversion of the-transport streams (in at least Paragraphs [0007,0063+]).

Regarding Claim 10, Morris teaches the method of claim 6, wherein converting the DTV interactive contents comprises:

- checking a validation of the interactive contents comprising a source document, which is recorded on the information storage medium (Paragraphs [0004,0089,0109]); and
- when the source document is validated, converting comments, process indicators, document type declarations, start tags, end tags, named character references, numeric character references, marked sections, and parsed character data in the source document into a DTV document format to generate a target document comprising the DTV interactive contents (Paragraphs [0051-0053;0058]).

Regarding Claim 12, Morris teaches an optical recording/reproducing apparatus to reproduce data recorded on an information recording medium on a DTV, the apparatus comprising:

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- a read-out unit reading out multi-streams (Paragraph [0008]), interactive contents, and reproduction control information from the information storage medium (Fig. 1, 102) having conversion information (in at least Paragraphs [0064+]) to convert the multi-streams and/or the interactive contents into DTV streams (Paragraphs [0046,0047,0051]);
- a first transcoder converting the multi-streams read-out by the read-out unit into transport streams appropriate to the DTV (Paragraphs [0046,0047,0051]);
- a second transcoder converting the interactive contents read out by the read-out unit into DTV interactive contents (Paragraphs [0046,0047,0051]); and
- a generator multiplexing the transport streams and the DTV interactive contents and generating DTV streams according to the reproduction control information read out by the read-out unit (Paragraphs [0029,0047,0051,0061,0062,0064]).

Morris fails to explicitly teach interactive contents and converting the read-out interactive contents into DTV interactive contents. Rodriguez et al. teaches interactive contents (in at least Paragraphs [0019,0030,0032] - interactive applications) and converting the read-out interactive contents into DTV interactive contents (Paragraphs [0036,0042]) and a first and second transcoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make two transcoders separated, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

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Regarding Claim 13, Morris teaches the apparatus of claim 12, but fails to explicitly teach further comprising: a digital interface interfacing the DTV streams generated by the generator to transfer to the DTV.

Rodriguez et al. teaches a digital interface interfacing the DTV streams generated by the generator to transfer to the DTV (in at least Paragraphs [0019,0030,0032] - interactive applications).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user.

Claim 14 is rejected under the same grounds as claim 2.

Claim 15 is rejected under the same grounds as claim 8.

Regarding Claim 16, Morris teaches the apparatus of claim 15, wherein the first transcoder comprises:

- a PS parse and demultiplex unit parsing a pack and a PES in PS data read out by the read-out unit to extract a video ES and an audio ES, an SCR from the pack, and PTS/DTS from a PES header (Paragraphs [0052,0065,0066,0072,0073]),
- a video rearranger searching a sequence start code and a picture start code in the video ES output from the PS parse and demultiplex unit to generate a first recognition signal by access unit and to extract the PTS/DTS (Paragraphs [0052,0053,0065,0066,0072,0073]);
- an audio rearranger obtaining a frame size according to audio synchronization information in the audio ES output from the PS parse and demultiplex unit to generate a

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second recognition signal by access unit and to extract the PTS (Paragraphs

[0052,0055,0065,0066,0072,0073]);

- a PES packetizer assigning the PES header to the outputs of the video rearranger and the audio rearranger according to the first and second recognition signals, and inserting time stamps, which are obtained based on the PTS/DTS extracted by the video rearranger (Paragraphs [0052,0065,0066,0071,0072,0073]);
- a time controller determining a time alignment of an AV packet by using an SCR value following the SCR value of an initial pack provided from the PS parse and demultiplex unit to generate a time control signal, and generating a PSI packet period signal and a PCR insertion period signal by sampling the PCR that is obtained using the SCR value (Paragraphs [0052,0065,0066,0071,0072,0073]);
- an AV packet generator generating the AV packets from the output of the PES packetizer according to the PCR insertion period signal; a PAT packet generator generating PAT packets (Paragraphs [0051,0055,0080]);
- a PMT generator generating PMT packets (Paragraphs [0051,0055, 0080]);
- a TS packet scheduler generating a packet selection signal and schedules the AV packets, the PAT packets, the PMT packets, and the Null packets, wherein the time control of the AV packets is determined according to a presence of the time control signal, and the PAT packets and the PMT packets are alternately scheduled when the PSI packet period signals are generated (Paragraphs [0052,0065,0066,0071,0072,0073]); and
- a TS multiplexer multiplexing the AV packets, the PAT packets, the PMT packets, and the Null packets according to the packet selection signal to output the MPEG-2 TS (Paragraphs [0052,0065,0066,0071,0072,0073]).

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Morris fails to explicitly teach generating and scheduling a null packet generator. Kato teaches the null packets for generation, scheduling and multiplexing (Fig. 1, 14; Col. 2, line 9; Col. 5, lines 4-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a null packet to add packets without significant data to a stream to stuff such stream to avoid any bottleneck of insufficient resources.

Regarding Claim 17, Morris teaches the apparatus of claim 16, but fails to explicitly teach wherein a priority of the TS packet scheduler comprises the AV packets being at a higher priority than the PAT packets and the PMT packets being at a higher priority than the Null packets. Kato teaches wherein a priority of the TS packet scheduler comprises the AV packets being at a higher priority than the PAT packets and the PMT packets being at a higher priority than the Null packets (Figs. 7, 8, 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a higher priority for entry point accumulation.

Claim 18 is rejected under the same grounds as claim 10.

Claim 19 is rejected under the same grounds as claim 11.

Regarding Claim 20, Morris teaches an apparatus to convert information stored in an information storage medium to DTV streams, comprising:

- a read-out unit reading out the information (in at least Paragraphs [0064+]) recorded on the information storage medium (Fig. 1, 102) comprising multi-streams (in at least Paragraphs [0008+]), and navigation information (Paragraphs [0046,0047,0051]);

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- a signal processing unit processing the read-out information into reproduction signals (in at least Paragraphs [0008+]);
- a first transcoder converting the multi-streams into transport streams (Paragraphs [0046,0047,0051]);
- a DTV-stream generator generating DTV streams using the transport streams and the DTV interactive contents (Paragraphs [0029,0047,0051,0061,0062,0064]).

Morris fails to explicitly teach interactive contents and converting the read-out interactive contents into DTV interactive contents and a navigation engine controlling the DTV-stream generator based on the navigation information. Rodriguez et al. teaches interactive contents (in at least Paragraphs [0019,0030,0032] - interactive applications) and converting the read-out interactive contents into DTV interactive contents (Paragraphs [0036,0042]) a navigation engine controlling the DTV-stream generator based on the navigation information (Paragraphs [0064,0073]) and a first and second transcoder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user. Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make two transcoders separated, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

Regarding Claim 21, Morris teaches the apparatus of claim 20, but fails to explicitly teach further comprising: a digital interface receiving the DTV streams from the DTV-stream generator and enabling data to be input bi-directionally.

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Rodriguez et al. teaches a digital interface receiving the DTV streams from the DTV-stream generator and enabling data to be input bi-directionally (in at least Paragraphs [0019,0030,0032] - interactive applications).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a medium capable of communication with user to allow user defined controls for facilitation of desired programming viewed by user.

Regarding Claim 22, Morris teaches the apparatus of claim 20, but fails to explicitly teach wherein the digital interface comprises a user-to-user (UU) interface or a user-to-network (UN) interface.

Rodriguez et al. teaches a user-to-network (UN) interface (in at least Paragraphs [0019-0025,0030,0032] - interactive applications).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a connection to a network with user to allow user defined controls for facilitation of desired programming viewed by user.

Claim 23 is rejected under the same grounds as claim 2.

Regarding Claim 24, Morris teaches the apparatus of claim 20, but fails to explicitly teach wherein the interactive contents comprises HTML, XHTML, or XML, and joint photographic experts group (JPEG) and portable network graphics (PNG) files.

Rodriguez teaches wherein the interactive contents comprises HTML, XHTML, or XML, and joint photographic experts group (JPEG) and portable network graphics (PNG) files (Paragraph [0065]).

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a connection with user to a network with browsing and navigational functionality to allow user a larger breadth of programming from which to choose.

Claim 25 is rejected under the same grounds as claim 4.

Claim 26 is rejected under the same grounds as claim 5.

Claims 27 and 28 are rejected under the same grounds as claim 11.

Claim 29 is rejected under the same grounds as claim 10.

6. Claims 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris (US 2001/0007568 A1) in view of Rodriguez et al. (US 2002/0059623 A1) and further in view of Kato (US 7,106,946 B1).

Regarding Claim 9, Morris teaches the method of claim 8, wherein converting the transport streams comprises:

- parsing a pack and a packetized elementary stream (PES) of read-out PS data to extract a video elementary stream (ES) and an audio ES (Paragraphs [0053,0055]), to extract a system clock reference (SCR) from the pack and to extract presentation time stamp/decoding time stamp (PTS/DTS) from a PES header (Paragraphs [0052,0065,0066,0072,0073]);
- assigning the PES header to the video ES and the audio ES (Paragraphs [0052,0053,0055]);
- inserting a proper time stamp based on the PTS/DTS (Paragraphs 0052,0072);

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- setting an internal timer to be an SCR value of an initial pack (Paragraphs [0052,0071]);
- generating a time control signal by determining a time alignment based on the SCR value of a sequential pack (Paragraphs [0052,0071]);
- sampling a program clock reference (PCR) obtained using the SCR to generate a program specific information (PSI) packet period signal and a PCR insertion period signal (Paragraphs [0051,0055,0080]);
- generating AV packets using a result of inserting the time stamp according to the PCR insertion period signal (Paragraphs [0051,0055,008]), and generating program association table (PAT) packets, program map table (PMT) packets (Paragraph [0051]);
- scheduling the AV packets, the PAT packets, the PMT packets, while a time control of the AV packets is determined based on the time control signal, and the PAT packets and the PMT packets are alternately scheduled (Paragraph [0051]) whenever the PSI packet period signals are generated (Paragraphs [0051,0055,0080]); and multiplexing the AV packets, the PAT packets, the PMT packets to generate the MPEG-2 TS (Paragraphs [0029,0047,0051,0061,0062,0064]).

Morris fails to explicitly teach generating and scheduling AV packets using null packets and multiplexing the Null packets. Kato teaches the null packets for generation, scheduling and multiplexing (Fig. 1, 14; Col. 2, line 9; Col. 5, lines 4-14).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have a null packet to add packets without significant data to a stream to stuff such stream to avoid any bottleneck of insufficient resources.

Regarding Claim 11, Morris teaches the method of claim 9, wherein generating the DTV streams comprises:

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- forming program and system information protocol (PSIP) information by using information related to a DTV stream conversion in the reproduction control information, and PAT and PMT information (Paragraphs [0051,0055,0080]);

Morris fails to explicitly teach converting the transport streams and the DTV interactive contents into a digital storage media command and control (DSM-CC) standard to generate a DSM-CC message; converting the PSIP information into a PSIP private section; and multiplexing the PSIP private section and the DSM-CC message with the MPEG-2 TS to generate the DTV streams. Rodriguez teaches converting the transport streams and the DTV interactive contents into a digital storage media command and control (DSM-CC) standard to generate a DSM-CC message; converting the PSIP information into a PSIP private section; and multiplexing the PSIP private section and the DSM-CC message with the MPEG-2 TS to generate the DTV streams. (Paragraphs [0028,0030,0031,0033,0037,0071]).

It would have been obvious to one of ordinary skill in the art at the time the invention to one of ordinary skill in the art at the time the invention was made to have the DSM for providing the IP with broadcast data.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Choi whose telephone number is (571) 272-9594. The examiner can normally be reached on Monday - Friday 9:00AM - 5:30PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marsha Banks-Harold can be reached on (571) 272-7905. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Marsha D. Banks-Harold/
Supervisory Patent Examiner, Art Unit 2621

/Michael Choi/
Examiner, Art Unit 2621